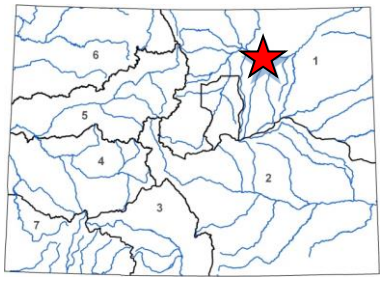
COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Poudre Learning Center, Hall-133 Riparian Restoration 60% Design Plan
Poudre Learning Center Foundation
January 2020 Board Meeting

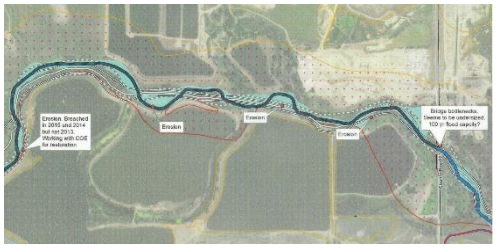
Colorado Watershed Restoration Program Application



LOCATION	
County/Counties:	Weld
Drainage Basin:	South Platte

DETAILS	
Total Project Cost:	$200,000
Colorado Watershed Restoration Program Request:	$100,000
Recommended amount:	$100,000
Other CWCB Funding:	$0
Other Funding Amount:	$56,000
Applicant Match:	$44,000
Project Type(s): Engineering Design	
Project Category(Categories): Watershed and Stream Restoration	
Measurable Result: 2,300 linear feet of stream channel design. 45-60 acres of floodplain/riparian area design.	

The Poudre Learning Center Foundation Board, a 501C3 organization on behalf of the Poudre Learning Center (PLC) and the PLC Board. The Foundation's role is to seek collaborative partners in the community for fundraising and to build support for PLC's goals. The Foundation Board is made up of community leaders. The PLC is funded and operated through collaboration of the four local public school districts, Greeley-Evans District 6, Windsor, Johnstown-Miliken, and Eaton, and is linked to many private schools. The PLC mission is to awaken a sense of wonder for the outdoors and inspire natural resource stewardship for the 30,000+ students hosted annually.



PLC seeks funding to develop a 60% design-build plan to restore and expand riparian habitat, improve stream function, reduce flood risk and enhance watershed health on our newly acquired 133-acre parcel known as the Hall-133. Once completed, the PLC will obtain additional funding to build out the project, which will dramatically improve ecological function along this river reach. Ultimately, upon successful reclamation, the Hall-133 will be used to expand PLC's mission providing experiential natural resource related outdoor education to the public. This grant, along with match, will be used to conduct geomorphological, hydrological and ecological analysis, survey and engineering to complete the 60% design plan improving channel stability and sediment transport at all flows, expansion of the riparian edge, reduction or elimination of stream edge berms/dikes, construction of swales and meander scars to accommodate mid and high flows, and installation of woody material in aquatic, riparian and transitional sites. As a final step the site will be planted with appropriate grass, forbs and deciduous woody plants to re-establish a productive low elevation cottonwood-willow floodplain system. The design will significantly restore stream function, riparian edge, site roughness and habitat interspersion in an area highly impacted by human use.

In 2018, through donation, the PLC, an interdisciplinary outdoor educational facility affiliated with our four local school districts and hosting over 30,000 student visits per year, received the Hall-133 acre property on the north bank of the Cache la Poudre River on condition that the parcel would be fully restored ecologically and used to expand PLC educational goals. The PLC has been in operation for over 20 years with a 60 acre donated parcel on which we have reestablished high-quality riparian vegetation and created a fishing pond. With broad community support, and many partners, the PLC has a proven record of achieving success in managing natural resources and educating the public about the great outdoors, and we are eager to get going on restoration of the Hall-133 site, which will be a tremendous public asset.

October 28, 2019

Mr. Chris Sturm, Stream Restoration Coordinator,
Watershed and Flood Protection Section
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

RE: Colorado Watershed Restoration Grant Application for Poudre Learning Center, Hall-133 Riparian Restoration Design Project, On Cache la Poudre in Greeley, Colorado

Dear Mr. Sturm:

The Poudre Learning Center is pleased to submit our grant application under the Colorado Watershed Restoration Grants Program for the Poudre Learning Center, Hall-133 Riparian Restoration Design Project, in Greeley Colorado. Our goal for the project in phase one is to develop a 60% design plan using existing and/or newly updated geomorphic, hydrological and ecological data. Once the 60% design is complete, we intend in phase two to acquire additional funding for final design and build out to complete our restoration efforts.

The concept for this project and intent to submit this application was presented to the Poudre Learning Center Foundation Board at their October 23, 2019 meeting and was endorsed to move forward. Our application requests $100,000 CWCB funding to be matched by $60,000 cash match along with $40,000 in-kind support. Our total budget for Phase one is $200,000.

We look forward to your favorable consideration of our Grant Application!

Lead for the PLC on this project is Mr. Larry Rogstad, Restoration Manager, at 970-666-0484, lrogstad@plcoutdoors.org , or if I may be of service you may contact me at 970-352-1267, or rtschillard@plcoutdoors.org.

Thank you for your assistance.

Sincerely,

Ray Tschillard

Ray Tschillard
Executive Director

Coalition for the Poudre River Watershed
320 East Vine Drive, ste 121
Fort Collins CO 80524
Tel 970-222-5754
www.poudrewatershed.org

October 30, 2019

Chris Sturm
Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, Colorado 80203

Re: Support for the Poudre Learning Center CWCB Watershed Restoration Grant application

Dear Mr. Sturm,

On behalf of the Coalition for the Poudre River Watershed (CPRW), I am writing to express our support for the grant request submitted by the Poudre Learning Center (PLC) to the CWCB Watershed Restoration Grant Program. CPRW's mission is to improve and maintain the ecological health of the Poudre River watershed through community collaboration. We believe that the PLC's proposal to create a 60% design to restore their Hall-133 site will provide great benefit to the lower Poudre corridor.

In 2017 we completed our Lower Poudre Flood Recovery and Resiliency Master Plan and a sediment transport analysis. The project planning area included 36 miles of the river starting east of I-25 to the confluence with the South Platte River. The goals of the plan were to identify and prioritize future restoration needs, current hazards and opportunities to improve river resilience and river health. In our plan, the PLC reach which included the Hall-133 site was ranked as one of our medium priority reaches. In the plan we identified opportunities to increase riparian habitat, reconnect the river with its floodplain, and improve sediment storage. If funded, the PLC's design will provide a solid foundation for the restoration of the site, & once implemented will increase the resiliency of the entire lower Poudre corridor. The project will also provide an invaluable learning opportunity for the community better understand what a resilient river can look like. Please don't hesitate to contact me if you have any questions regarding our support.

Sincerely,

Jennifer Kovecses, CPRW Executive Director

BIG THOMPSON
WATERSHED COALITION

PO Box 1923
Loveland, CO 80539
www.bigthompson.co

October 28, 2019

Mr. Chris Sturm, Stream Restoration Coordinator
Watershed and Flood Protection Section
Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, Colorado 80203

Dear Mr. Sturm,

I am pleased to offer my support to the Poudre Learning Center's (PLC) Grant Application for the Hall 133 Riparian Corridor Improvement Design Project on the lower Cache la Poudre Watershed in Greeley, Colorado. For over 20 years the PLC has provided leadership, expertise and public educational opportunity in resource management and stewardship of riparian habitat in Northern Colorado. The quality habitat found on the 65 Acre PLC campus is a testament to their ability to restore and mange habitat by over 30,000 student visits annually. With the donation of the Hall-133 site, PLC faces a tremendous opportunity and challenge to restore design, fund and implement a plan that will increase, reclaim, and restore riparian and transitional habitat, enhancing stream function, dynamics and resiliency against future flooding while protecting aquatic life. Constructing a highly functional stream on this parcel, which also operates as a public educational facility, will provide an excellent and much needed teaching example of watershed stewardship for low elevation cottonwood-willow riparian habitat, while serving as an accessible site for research. Ultimately, the Hall 133 Project, which includes broadening and reconnecting the riparian corridor, development of swales and midflow meander scars, and enhancement of transitional benches, will utilize the expertise of PLC's many diverse supporters, and will include significant public outreach. The project will include creating educational materials and programming to be shared with students Through volunteer field work on this project students and supporters will become Stewards of the Cache la Poudre by assisting in revegetation opportunities.

The lower Cache la Poudre is a Front Range gem that has suffered in the past. This project is an opportunity for us to work together to improve stream function, habitat, public access and appreciation for and stewardship of this watershed. For these reasons I enthusiastically support this grant application. Please Feel free to contact me if I can be of further service.

Sincerely,

Larry Rogstad,
President, Big Thompson Watershed Coalition Board

October 28, 2019

Mr. Chris Sturm, Stream Restoration Coordinator
Watershed and Flood Protection Section
Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, Colorado 80203

Re: Poudre Learning Center's (PLC) Grant Application for the Hall 133 Riparian Corridor Improvement Design Project

Mr. Sturm:

I am pleased to offer my support to the Poudre Learning Center's (PLC) Grant Application for the Hall 133 Riparian Corridor Improvement Design Project on the lower Cache la Poudre Watershed in Greeley, Colorado.

The City of Greeley Natural Areas & Trails division (NAT) is a strong partner of the PLC. For over 20 years, the PLC has provided a location for over 30,000 students from numerous school districts each year to connect with and learn about the natural world on the PLC campus. The location of the current PLC campus and the recently donated Hall-133 property provides opportunity to influence the Cache la Poudre (Poudre) riparian area on both the north and south banks.

The lower reaches of the Poudre have been impacted by adjacent industry, flooding, channelization, and otherwise constraining a plains river system thus not allowing it to function in a healthy, dynamic manner. PLC's proposed project will provide foundational design to protect a threatened outside bend in the river in a thoughtful, sustainable approach. It will also facilitate design to lay back banks on the northern bank to provide improved river health, flood mitigation, and function by reconnecting with groundwater and providing the width needed in this stretch to develop swales and midflow meander scars, and enhancement of transitional benches. In true PLC form, they will use volunteers, students, and local researchers as integral partners to bring this project to successful implementation while providing it as a living laboratory during and after implementation.

NAT supports projects like this one presented by the PLC to protect and restore river corridors to health and function. This project provides and outstanding opportunity to do just that, and I am pleased to recommend full funding for this project.

Sincerely,

Justin Scharton
Superintendent, City of Greeley Natural Areas & Trails Div.

Department of Earth and Atmospheric Sciences
University of Northern Colorado, 501 20th St Box 100, Greeley, CO 80639
Tel: 970-351-1086 | **Email**: sharon.bywaterreyes@unco.edu

October 31, 2019

Mr. Chris Sturm, Stream Restoration Coordinator
Watershed and Flood Protection Section
Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, Colorado 80203

Dear Mr. Sturm,

Since the inception of the Poudre Learning Center and the Earth and Atmospheric Sciences Department at University of Northern Colorado have had a long-standing relationship with mutual goals towards providing science-based learning experiences and instilling in our students the value of land stewardship that benefits ecosystems and the community. Dr. Hoyt, who recently retired from the Earth and Atmospheric Sciences Department, has worked closely with Mr. Tschillard and the Poudre Learning Center to build relationships between the Center and UNC through collaborative internships and research projects. With Dr. Hoyt's retirement and greater role in Poudre Learning Center affairs as a board member and my recent hire in the Earth and Atmospheric Sciences Department, we are primed for successful future collaborations. In fact, the Center and I have formed ad hoc relationships in the hopes of building more formal ones in the future, such as through this opportunity. As a geologist and fluvial geomorphologist, I was thrilled to learn of the Center's existence and have worked with the Center to mentor directed study students that are collecting baseline geomorphic data on the Poudre River, including turbidity, grain size, and topography—currently underway. My scholarly and personal goal is to bridge the gap between local stakeholders, river restoration practitioners, and the scientific community with a research agenda that incorporates the needs and viewpoints of these various groups while advancing river science. To this end, I have forged relationships with local stakeholders and practitioners with the goal of learning from restoration practices and incorporating this new knowledge and the broader scientific knowledge base into restoration designs to ensure practices are process based and scientifically sound. I hope to provide this proposed project with my expertise to ensure its success.

Sincerely,

Sharon Bywater-Reyes, Ph.D.
Assistant Professor, Environmental Geosciences

CENTRAL COLORADO WATER CONSERVANCY DISTRICT
3209 W 28 STREET | GREELEY, CO 80634 | WWW.CCWCD.ORG
LOCAL: 970-330-4540 | METRO: 303-825-0474 | FAX: 970-330-4546

October 31, 2019

Mr. Chris Sturm, Stream Restoration Coordinator
Watershed and Flood Protection Section
Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, Colorado 80203

Dear Mr. Sturm,
I am pleased to offer my support to the Poudre Learning Center's (PLC) Grant Application for the Hall 133 Riparian Corridor Improvement Design Project on the lower Cache la Poudre Watershed in Greeley, Colorado. For over 20 years the PLC has provided leadership, expertise and public educational opportunity in resource management and stewardship of riparian habitat in Northern Colorado. The quality habitat found on the 65 Acre PLC campus is a testament to their ability to restore and mange habitat by over 30,000 student visits annually. With the donation of the Hall-133 site, PLC faces a tremendous opportunity and challenge to restore design, fund, and implement a plan that will increase, reclaim, and restore riparian and transitional habitat, enhance stream function, to increase resiliency against future flooding while protecting existing aquatic life. Ultimately, the Hall 133 Project, which includes broadening and reconnecting the riparian corridor, development of swales and mid-flow meander scars, and enhancement of transitional benches, will utilize the expertise of PLC's many diverse supporters, and will include significant public outreach. The project will include creating educational materials and programming to be shared with students Through volunteer field work on this project students and supporters will become Stewards of the Cache la Poudre by assisting in revegetation opportunities.

The lower Cache la Poudre is a Front Range gem that has suffered in the past. This project is an opportunity for us to work together to improve stream function, habitat, public access and appreciation for and stewardship of this watershed. For these reasons I enthusiastically support this grant application. Please feel free to contact me if I can be of further service.

Sincerely,

Randy Ray,
Executive Director,
Central Colorado Water Conservancy District

Cache la Poudre River
National Heritage Area

October 31, 2019

Mr. Chris Sturm, Stream Restoration Coordinator
Watershed and Flood Protection Section
Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, Colorado 80203

Dear Mr. Sturm,

I would like to offer my support for the Poudre Learning Center's (PLC) Grant Application for the Hall 133 Riparian Corridor Improvement Design Project on the lower Cache la Poudre Watershed in Greeley, Colorado. For many years the PLC served as the headquarters for the Cache la Poudre River National Heritage Area (CALA), which the Poudre Heritage Alliance (PHA) manages as a non-profit organization. The Board of Directors for the PHA has always included community representation from across Northern Colorado, and the PLC has been an extremely important supporter of this nationally significant landscape during that time.

Over these 20+ years of collaboration between the PHA and PLC, the PLC has provided leadership, expertise and public educational opportunities in resource management and stewardship of riparian habitat in Northern Colorado. The quality habitat found on the 65 Acre PLC campus is a testament to their ability to restore and mange a space where over 30,000 students visit annually. The PHA annually supports over 1,000 school-aged children to visit the PLC, largely from underserved communities, through a field trip grant program called "Learning in Our Watershed". The positive feedback we receive from students visiting the PLC is tremendous.

With the donation of the Hall-133 site, PLC faces a critical opportunity and challenge to restore design, fund, and implement a plan that will restore riparian and transitional habitat, enhance stream function, and provide resiliency against future flooding while protecting aquatic life. Ultimately, the Hall 133 Project will utilize the expertise of PLC's many diverse supporters, and will include significant public outreach. The PHA is especially excited that this project will include creating educational materials and programming to be shared with students.

The CALA is an amazing natural and cultural resource, and we cannot think of a better steward for this project than the PLC. For these reasons I enthusiastically and wholeheartedly support this grant application. Please feel free to contact me if you have any questions or clarifications.

Sincerely,

Kathleen Benedict, Executive Director for PHA

PROJECT PROPOSAL SUMMARY SHEET

PROJECT TITLE: *Poudre Learning Center, Hall-133 Riparian Restoration 60% Design Plan*
PROJECT LOCATION: *North Bank of Cache la Poudre River, immediately upstream of 83rd Avenue bridge (Weld Road 27), and to the west for approximately ¾ of a mile (estimated 3,800 linear feet) in Weld County, Colorado*
GRANT TYPE: *Watershed/Stream Restoration and/or Protection (Restoration) Grant, and/or Flood Mitigation Grant*
GRANT REQUEST AMOUNT: *$100,000 (CWCB)*
CASH MATCH FUNDING: *$56,000 (PLC)*
IN-KIND MATCH FUNDING: *$44,000 (PLC staff, supporters, stakeholders, Foundation and Board and volunteers)*
PROJECT SPONSOR: *Poudre Learning Center Foundation, on behalf of the Poudre Learning Center*
CONTACT PERSON: *Larry Rogstad, Restoration Manager,*
Email: lrogstad@plcoutdoors.org Phone: 970-352-1267
PROJECT DESCRIPTION: *Through its Foundation, the Poudre Learning Center (PLC) seeks funding to develop a 60% design-build plan to restore and expand riparian habitat, improve stream function, reduce flood risk and enhance watershed health on our newly acquired 133 acre parcel known as the Hall-133. Once completed, the PLC will obtain additional funding to build out the project which will dramatically improve ecological function along this river reach. Ultimately, upon successful reclamation, the Hall-133 will be used to expand PLC's mission providing experiential natural resource related outdoor education to the public. This grant, along with match, will be used to conduct geomorphological, hydrological and ecological analysis, survey and engineering to complete the 60% design plan improving channel stability and sediment transport at all flows, expansion of the riparian edge, reduction or elimination of stream edge berms/dikes, construction of swales and meander scars to accommodate mid and high flows, and installation of woody material in aquatic, riparian and transitional sites. As a final step the site will be planted with appropriate grass, forbs and deciduous woody plants to re-establish a productive low elevation cottonwood-willow floodplain system. The design will significantly restore stream function, riparian edge, site roughness and habitat interspersion in an area highly impacted by human use. In 2018, through donation, the PLC, an interdisciplinary outdoor educational facility affiliated with our four local school districts and hosting over 30,000 student visits per year, received the Hall-133 acre property on the north bank of the Cache la Poudre River on condition that the parcel would be fully restored ecologically and used to expand PLC educational goals. The PLC has been in operation for over 20 years with a 60 acre donated parcel on which we have reestablished high-quality riparian vegetation, created a fishing pond and through the generosity of our local community constructed the historic Hazelton School and our state of the art InSTEM lab on the Prairie. With broad community support, and many partners, the PLC has a proven record of achieving success in managing natural resources and educating the public about the great outdoors, and we are eager to get going on restoration of the Hall-133 site which will be a tremendous community, public asset.*

POUDRE LEARNING CENTER GRANT QUALIFICATION EVALUATION:

LEAD PROJECT SPONSOR/S (10pts): The lead project sponsor is the ***Poudre Learning Center Foundation Board, a 501C3 organization*** on behalf of the **Poudre Learning Center (PLC)** and the **PLC Board**. The ***Foundation's*** role is to seek collaborative partners in the community for fundraising and to build support for PLC's goals. The ***Foundation Board*** is made up of community leaders. The PLC is funded and operated through collaboration of the four local public school districts, Greeley-Evans District 6, Windsor, Johnstown-Miliken, and Eaton, and is linked to many private schools. The PLC mission is to awaken a sense of wonder for the outdoors and inspire natural resource stewardship for the 30,000+ students hosted annually. In addition to the ***Foundation***, the PLC Board, consisting of educators and community leaders, oversees educational content of PLC programming to insure that the resource content also fulfills statewide educational standards. Additionally we are linked with many other organizations, corporations and individuals in the community including the University of Northern Colorado, Rotary, local scouting groups and many others.

IN-KIND SERVICES and CASH CONTRIBUTIONS (10 pts)

- **CWCB Grant Request $100,000**
- **PLC Cash Contribution $56,000** (secured)
- **PLC In-Kind Match $44,000** (Secured) Labor and technical support from PLC Resource Manager, PLC Executive Director, and PLC staff. Labor, review and collaboration by experts from the University of Northern Colorado,Coalition for the Poudre River Watershed, private firms and others with expertise, both individually and in stakeholder meetings as the project is implemented and moves forward. PLC is working with a Professor of Environmental Geoscience at the University of Northern Colorado who is designing upcoming class field experiences around this design charette and will contribute through her class towards the final 60% design outcome.
- We will be seeking grant funding through the CWCB Healthy Rivers Fund, due on Nov.8. If successful, the money will be applied toward completing this project. Although a component of this project is to increase flood resilience on the south bank, the major opportunity provided by this grant involves stream/riparian/watershed enhancement and EWP state or federal funding would not be applicable.

ORGANIZATIONAL CAPABILITY (30 pts)

Organizational History (10pts) Working under the guidance of the ***Foundation*** and the **PLC Board**, PLC has been in operation for over 20 years providing science-based K-college experiential outdoor learning for the community and beyond. We currently host 30,000 student visits annually with countless additional visits by anglers, hikers and wildlife observers on our property opened to the public. Our facility includes the 65 acre main campus along the Cache la Poudre, donated to PLC, on which the historic Hazleton schoolhouse and our InSTEM Station on the Prairie are located. Both the schoolhouse and InSTEM lab were built totally through fundraising and private donations with the help of our close collaborative friends in the local **Rotary Clubs** along with **SRC Energy,** a Private Firm. Approximately, five acres of our main campus are used for building infrastructure, with the remaining 60 acres kept as a representative steppe prairie with associated low elevation cottonwood-willow riparian ecosystem. A recovering gravel pond on site is maintained by partnering with **Central Colorado Water Conservancy District** and is stocked and managed for public

recreational fishing with the help of **Colorado Parks and Wildlife**. On acquisition of the main PLC campus this site was an abandoned gravel pit. Working with many partners over the years through grants and donations, this site has recovered to a well-established, high-quality grassland biome. Because of the achievement PLC has demonstrated on its property and programming, we recently received a donation of an adjacent 133 acre parcel, named the **Hall-133**, an abandoned gravel mine, from one of our benefactors with the expectation that the PLC will restore biological function and be able to increase educational opportunity on watershed management. We are proud that because of our strong relationship with **four public school districts, Rotary international, The City of Greeley, Town of Windsor, Weld County,** scouting groups, private businesses, and kind individuals, we have been able to build our facilities through donations. We are strongly linked to other partners including **West Greeley Soil Conservation District, Colorado Parks and Wildlife, Coalition of the Poudre River Watershed,** and **Big Thompson Watershed Coalition,** to name a few.

Level of Staffing (10pts) Ray Tschillard, PLC Executive Director, has overseen the development and operation of the facility since its inception. Schooled as a geologist, Ray has been involved in public education for over 43 years as a classroom teacher and administrator. Throughout his career Ray has developed strong ties to the community, has been the recipient of numerous honors and awards and is much respected for the work he has done. As PLC Executive Director Ray will provide oversight and input on this project, and will dedicate **10%** of his time to it. PLC has contracted with **Larry Rogstad** to be the **PLC Restoration Manager** and he will serve as the **Project Manager** for the Hall-133 grant. Larry will dedicate **50%** of his time to completing the 60% design plan and will be seeking additional funding to complete the build out ASAP. With a background as an aquatic invertebrate ecologist, Larry retired from Colorado Division of Wildlife/Parks and Wildlife after 38 years of service, working 24 years as Greeley North District Wildlife Manager, Weld and Larimer Counties, and 14 years as Area Wildlife Manager (AWM) overseeing all CPW activities in Weld, Larimer, Boulder and Broomfield Counties. His long service in Greeley allowed Larry to gain expertise on low elevation cottonwood-willow riparian systems and develop strong relations throughout the community. As an AWM, his area included the Big Thompson, Little Thompson, St Vrain, Left Hand, Boulder Creek and Coal Creek watersheds within the lower S. Platte system Following the devastating 2013 and 2014 floods Larry was a leader in emergency response, assessment, funding, restoration and recovery of stream systems up to and including being CPW's lead on the US 34-Big Thompson recovery project. In retirement, Larry continues to stay involved as a Board Member on the Big Thompson Watershed Coalition. Through experience he has expertise in managing budgets, applying for reviewing and approving permits at multiple levels, property management, resource and ecological assessment, and land use planning and implementation. In his work, Rogstad always focuses on promoting inclusive, collaborative natural resource management decision making processes. Among the many awards he has received, Larry was named 1995 DNR Outstanding Employee, 1996 John D. Hart Officer of the Year, 2015 CPW Manager of the Year, and the 2018 Recipient of the Cliff Coghill Lifetime Achievement award.

Demonstrate Project Budget/schedule are realistic (10pts) Please see Attachment III Budget and schedule for reference. The work area as shown in Attachment II encompasses fifty to seventy five acres and approximately 3,800 linear feet of stream. Although PLC owns both stream banks on this reach, almost all of the work will occur on river left, the north bank extending west of 83rd Avenue Bridge. The assessment and design work will take eleven months to complete using staff, volunteers

and consultants hired to complete the technical work to a 60% design level. February and March will be used as the phase 1 start-up period for gathering existing information and research that may be pertinent, and to develop and implement a review- hiring process for the expert consultants that will be used on the project. We will also recruit, organize and initiate meetings for our pool of stakeholders that will provide opinion and review of project components as they become available. In phase 2, (March through July) survey, photo-pointing and technical work will occur, led by our consultants and data will be assembled to facilitate engineering and design work. During this time there will be at least one stakeholder meeting to update interested parties. Phase 3, (July through October) data collection will be completed and data will be maintained in a permanently available file. Preliminary engineering and design work to at least the 30% level will be completed, and the preliminary design will be discussed in an on-site field meeting with consultants and stakeholders where comments are recorded. Phase 4, (October through November) final engineering will be completed considering relevant input from stakeholders to complete the final 60% design. Completion of this project will occur December 16 to December 30, 2020 as information on the final plan is disseminated and fundraising begins to complete the project. As PLC feels strongly that all resource recovery should have public volunteer participation, concurrent with the development of the 60% design plan working with our school district's agricultural program partners, we will initiate a small-scale test restoration management farm plot, raising seedling stock suitable to the riparian site in a small irrigated plot. Work on the experimental plot will begin with layout on February 2,2020, planting on or about May 5, care and maintenance throughout the summer and transplant to suitable sites February-March 2021. Additionally we will be using volunteer help to do willow plantings on associated banks that are outside the 60% design boundary.

PROPOSAL EFFECTIVENESS (50 PTS)

Information being used to develop the proposed project (10pts) During the consultant screening process, PLC will query potential candidates to insure that they are familiar and experienced in using the latest and most appropriate models, assessment and analytical tools. Rogstad and others on the stakeholder team, have extensive experience in all phases of designing and implementing stream/riparian restoration projects, and will use frequent field checks for ground truthing work. Ultimately when design process occurs constant oversight and review by PLC staff and build engineers will fineline final the design to be successful for the site.

Potential Background for consideration

- ***Lower Poudre River Recovery and Resilience Master Plan, December 2017*** Prepared for The Coalition for the Poudre River Watershed
- ***Poudre River Trail Risk Assessment and Prioritization March 2019,*** Prepared for the City of Greeley by Otak
- **Native Plant Revegetation Guide for Colorado, CoDNR**
- ***Weld County Flood Plain Mapping,*** By FEMA for Weld County
- ***Post-Flood Recovery Assessment and Stream Restoration Guidelines for the Colorado Front Range,Eric Richer, Matt C Kondratieff and Ben Swigle,*** Colorado Parks and Wildlife
- ***Management of Cottonwood-Willow Riparian Associations Below 8000 in Colorado,*** Colorado Chapter of the Wildlife Society
- ***PLC, Hall-133 Conceptual Master Plan, 2018***

- ***PLC, Hall-133 Long-term Management Plan,*** (In production)

Multi Objective Aspects of the Project (30 pts). Because of the long legacy of farming in this area, lands adjacent to the Cache la Poudre and the stream itself have undergone change. Additionally with large scale, open pit gravel mining over the last 35 years, the stream, banks and associated riparian and transitional habitat, have been significantly altered, negatively impacting the resources, esthetics and biotic community. With increasing subdivisions and paved roads now dotting the landscape, habitat along the riparian corridor has become severely fragmented, limiting wildlife and recreation, and there has been relatively little effort at preserving, protecting or enhancing publicly accessible open space on the Poudre east of I-25. As communities continue to grow and water use in the valley changes, it is imperative that we develop an understanding for, appreciation of, and a sense of ownership for our low elevation streams and watersheds. To offset losses, we need to look for sites where we can return stream function, including low flow channels, multi-stage mid- and peak-flow resilience, effective sediment transport, and enhanced minimally fragmented riparian corridors, and intact transitional upland habitat. Habitat along eastern plains streams needs to include interspersion in a large enough area to truly benefit, fish, wildlife and recreation close to home. The Poudre Learning Center is the ideal spot to do this. Currently, with over 200 acres open for public enjoyment, our south campus has already become a model of resource stewardship in our community at a spot in the watershed that has the best opportunity to meaningfully secure, create, and implement natural resource protection on the landscape level. The PLC site is the stewardship cornerstone that our community effort can be built on. Our community has an active Lower Poudre Coalition that meets regularly to share ideas and opportunities. The City of Greeley recently completed the Cottonwood Hollow open space restoration one mile downstream and they are also working on properties further downstream. The Poudre trail runs through the PLC property, as it links Greeley Windsor and Fort Collins. The PLC is also working to acquire additional neighboring properties. With our many substantial partners, the Lower Poudre Watershed is on que to become a community second to none in outdoor recreation, nature appreciation, and stewardship of natural resources. Finally, the primary goal of the PLC - educating the public towards understanding and appreciation of nature, will foster the message of conservation throughout our community and beyond.

Describe Proposed Monitoring, Measure of success (10pts) First, implementing a well designed plan that functions over time, simplifies the monitoring process. We will achieve success if we have a stream that has a stable low- and mid-flow channel with stability in the pool riffle run sequence, maintains appropriate sediment transport, has highflow channels that are stable and able to move peak flows without excess erosion, all fully connected to a wide riparian and transitional upland corridor with high interspersion and a diverse stand of vegetation, and minimal issues with invasives. We will know we have achieved success if, over time, we see an increase in aquatic invertebrate diversity, development of woody component, stream channel and swale stability and an improvement in plant stand density and diversity. With that, we should be seeing an increase in wildlife use, diversity and site occupation. Ultimately, success will be known when the public sees the change for the better, and increasingly understands our role in maintaining watersheds as an essential community goal.

Monitoring:

- Use of drone photography in design, development, and in periodic monitoring of aerial photo-points over time
- Use of ground photopoints during and after construction for monitoring change over time.
- Periodic, systematic stream aquatic invertebrate sampling
- Continuation of periodic fishery sampling over time
- Continuing systematic vegetation sampling, species diversity, % cover, shrub height density, etc.
- Monitoring of stream channel connectivity, sediment transport, depositional and erosional patterns, thalweg depth/width ratio
- Monitoring of created swales using logged elevations to see that they maintain ideal configuration over time
- Monitoring water quality
- Establishing post-flood protocols/team to make quick post flood assessment
- Three year, five year, and ten year in depth review

Attachments

Attachment I: Scope of Work
Attachment II: Budget & Timeline
Attachment III: Site Map
Attachment IV: Conceptual Design Map
Attachment V: Supporting Document

Attachment I
SCOPE OF WORK

GRANTEE: *Poudre Learning Center Foundation on behalf of Poudre Learning Center (PLC)*

PRIMARY CONTACT: *Poudre Learning Center, Mr. Larry Rogstad, Restoration Manager*

ADDRESS: *8318 West F Street, Greeley, Colorado 80631*

PHONE: *970-352-1267*

PROJECT NAME: *Poudre Learning Center, Hall-133 Riparian Restoration 60% Design Plan*

GRANT AMOUNT: *$100,000*
INTRODUCTION AND BACKGROUND: *Through donation PLC, a public education facility and entity, acquired the Hall-133 acre parcel on the north bank of the Cache la Poudre River. Due to previous mining,currently the site has minimally functional riparian and transitional uplands, and bermed and diked river channel, which during flooding causes damage to ponds on the south bank. To restore vitality of the river corridor, PLC intends to restore stream function at all flow rates, widen the riparian bench, transitional bench and uplands on the Hall-133. The design on build out will reduce/lower dikes, expand the riparian edge, create overflow swales along the transitional bench, use woody material throughout the stream, riparian and transitional habitat as needed, revegetate newly created riparian areas, and upon full restoration use the site to further PLC's educational mandate by using this site to provide watershed education for our visitors. The improved corridor will also dramatically improve wildlife habitat. We are seeking this $100,000 grant partnered with $100,000 match and in-kind to study and assess the site culminating in completing a 60% design which upon further funding will be used to build out the habitat restoration/enhancement project.*

OBJECTIVES: *The work to be performed under this grant includes: building stakeholder-oversight group, compiling criteria for obtaining consultants through a competitive bidding process, establishing long-term photopoints using drones and/or ground photography, obtaining a site survey, using consultant expertise to gather available pertinent data, applying the data to develop a preliminary plan, and vetting the preliminary plan through a public process. Based on input received from staff and stakeholders the preliminary plan will be revised and finalized to develop a draft 60% plan. Presenting the draft 60% plan via public process, and based on input from the public and stakeholder the draft will be modified to complete a detailed 60% design plan that will be used to build out the project. Simultaneously, with the plan design PLC would like to include a public involvement element to the project. Working with the local High School we intend to develop a small scale test restoration farm on the PLC site which will be used to grow stock for reclamation plantings on site. Eventually PLC intends to expand this operation to provide plant stock throughout the watershed.*

TASKS:

TASK-1: *Project Start up*

1. *Coordination with CWCB*
2. *Initial contact with potential stakeholders*
3. *Public outreach*
4. *Initial data/information collection*
5. *Develop consultant specifications*
6. *Develop bid/hiring process*
7. *Advertise the job*
8. *Interview/select prospective consultants from hiring pool*
9. *Secure commitment from the best consultant available*
10. *Initiate conversation with the vocational ag/horticulture instructors at our district high schools to determine interest in developing a small test restoration farm plot on PLC lands*

Description of Task 1: *At the outset PLC will coordinate with CWCB representative to establish clear working relationship, develop requisite record keeping protocols based on CWCB expectations, establish method for invoicing and detailed project working budget and timeline. The PLC will reach out to our many technical, working partners informing them of this project and seeking to put together a group willing to serve as stakeholders. We will also inform our other supporting partners and the general public of the project and provide them opportunity for assisting on it. After an initial stakeholder meeting we will work together to create project budget, delineate consultant skill sets needed to accomplish the task and finalize an interview hiring process. The job will be advertised and a consultant will be chosen from the available candidate pool.*

Method/Procedure, Task 1: *Potential stakeholders will be contacted from the PLC partner roster. Public contact will occur via the Greeley Tribune. Meetings will be scheduled and will occur as needed. Bid specs will be compiled collaboratively from the stake holder group. Bids will be reviewed by a group of volunteers and top candidates will face a group interview.*

Deliverable, Task 1: *Creation of stakeholder group to be used throughout the project. Hiring of the best potential consultant to complete the task.*

TASK-2: *Project Implementation*

1. *Notify selected consultant/s*
2. *Draft and execute necessary contracts*
3. *Engage stakeholder process*
4. *Conduct survey work*
5. *Initiate photopoint documentation*
6. *Gather pertinent background information*
7. *Perform assessment work*
8. *Initiate preliminary engineering/design work*
9. *Initial planning and development of test farm plot adjacent to PLC InSTEM School*

Description of Task: *Working with the selected consultant/s PLC will develop and execute a contract including expectations, timeline, record keeping, final deliverables, budget and payment schedule. PLC will orient consultant to the project site. PLC will coordinate with consultant during data gathering, assessment, analysis and preliminary engineering/design work. PLC will coordinate with consultant on public outreach. PLC will assist in developing first draft for design.*

Method/Procedure: *PLC Restoration Manager will lead on project and provide liaison services between PLC Foundation/PLC, consultants and stakeholders*
Deliverable: *Draft one site design, preliminary contact with permitting agencies and draft permit application.*

Task 3, Project Design

1. *Continue engineering design work*
2. *Develop draft one site design*
3. *Initiate permitting requests*
4. *Circulate draft 1 for internal PLC review and comment*
5. *Present draft one design for stakeholder/public review*
6. *Based on input, develop detailed first draft*
7. *Formal Application on appropriate permits as needed*
8. *Photopoints taken as specified*
9. *Build out and initial planting of suitable plant stock on the experimental plot*

Method/Procedure Task 3: *PLC Restoration Manager will work with consultant/s and stakeholders to accomplish work*
Deliverable: *Detailed first draft of site design, documented record of contact with potential permitting entities, application submitted for permits as required*

Task 4, Final Design

1. *Circulate completed 1st draft design to PLC staff and stakeholders for comment*
2. *Complete final draft design and circulate it for final comments*
3. *Follow up as needed on outstanding permit applications*
4. *Complete permit log*
5. *Assemble final design with attached permit log*
6. *Seek funding to implement design build out*
7. *Complete final billing and project records,*
8. *Close out with CWCB*
9. *Transplant of plant stock from experimental plot onto appropriate PLC site/s*

Method/Procedure, Task 4: *PLC Restoration manager will coordinate and work with consultants to accomplish work*

REPORTING AND FINAL DELIVERABLE: *The Final Deliverable will be a detailed 60% design plan for stream, riparian and transitional upland restoration on the north bank of the Cache la Poudre River on the PLC Hall-133 parcel, encompassing functional fluvial, geomorphic, hydrological and ecological dynamics, sustainability and resilience/risk reduction to future*

flooding. The plan will include permit approval from subject agencies as needed. Planting of 100 seedlings onto PLC riparian/upland sites. PLC will compile and retain detailed records on the project, will properly present requests for payment, invoicing etc., and will supply CWCB with necessary documentation to fulfill grant requirements.

ATTACHMENT II: Budget and Timeline Table

TASK	DESCRIPTION	TARGET START DATE	TARGET COMPLETION DATE	CWCB FUNDING	OTHER CASH FUNDING	IN-KIND FUNDING	TOTAL FUNDING
1.	**Project Start up**	**02/02/2020**	**03/23/2020**				
1.1	Initial Partner Contact	02/02/2020	02/24/2020			$ 400.00	$ 400.00
1.2	Initial Data Collection	02/02/2020	03/23/2020	$ 400.00	$ 600.00		$ 1,000.00
1.3	Develop consultant Specs	02/02/2020	02/14/2020	$ 500.00	$ 500.00		$ 1,000.00
1.4	Hire Consultants	02/14/2020	02/28/2020	$ 500.00	$ 250.00	$ 850.00	$ 1,600.00
1.5	Consultant Orientation	03/02/2020	03/06/2020	$ 1,000.00	$ 250.00	$ 250.00	$ 1,500.00
1.6	Initial Public Outreach	03/09/2020		$ 500.00	$ 500.00	$ 500.00	$ 1,500.00
2.	**Project Implementation**	**03/09/2020**	**09/01/2020**				
2.1	Survey Work	03/09/2020	03/16/2020	$ 15,000.00	$ 5,000.00		$ 20,000.00
2.2	Geomorphology	03/17/2020	09/01/2020	$ 15,100.00	$ 5,000.00	$ 10,000.00	$ 30,100.00
2.3	Hydrology	03/17,2020	09/01/2020	$ 7,000.00	$ 5,000.00	$ 10,000.00	$ 22,000.00
2.4	Ecological Assessment	03/17/2020	09/01/2020	$ 15,000.00	$ 5,000.00	$ 5,000.00	$ 25,000.00
2.5	Public Outreach	03/17/2020	09/01/2020	$ 2,000.00	$ 2,000.00	$ 4,000.00	$ 8,000.00
2.6	Value Engineering	05/18/2020	11/02/2020	$ 8 ,500.00	$ 7,400.00	$ 2,000.00	$ 17,900.00
2.7	Permitting, (***404 flood Plain Development Etc. Assuming no need For CLOMR, or LOMR*****)	05/01/2020	12/14/2020	$ 10,500.00	$ 4,500.00		$ 15,000.00
3	**Project Design**	**05/01/2020**	**11/16/2020**				
3.1	Value Engineering	05/01/2020	11/16/2020	$ 10,000.00	$ 8,000.00	$ 2,500.00	$ 20.500.00
3.2	Public Review	11/18/2020	11/30/2020		$ 500.00	$ 1,000.00	$ 1,500.00
3.3	Final permitting	12/15/2020	12/30/2020	$ 5,000.00	$ 5,000.00		$ 10,000.00
4.	**Final Design**	**12 /01/2020**	**12/30/2020**				
4.1	Draft Design 1	12 /01/2020	12/15/2020		$ 3,000.00		$ 3,000.00
4.2	Public Review	12/01/2020	12/15/2020		$ 500.00	$ 500.00	$ 1,000.00
4.3	Final Design	12/16/2020	12/30/2020	$ 1,000.00			$ 1,000.00
5	**Project Management**	02/01/2020	12/30/2020	$ 8,000.00	$ 3,000.00	$ 7,000.00	$ 18,000.00
			TOTAL	**$100,000.00**	**$56,000.00**	**$44,000.00**	**$ 200,00.00**

* * Budget additional $160,000.00 If CLOMR and or LOMR permitting is needed

SITE MAP

30279 County Road 27
Greeley, Colorado 80631
Parcel # 080531100064

↖ Windsor 4 miles

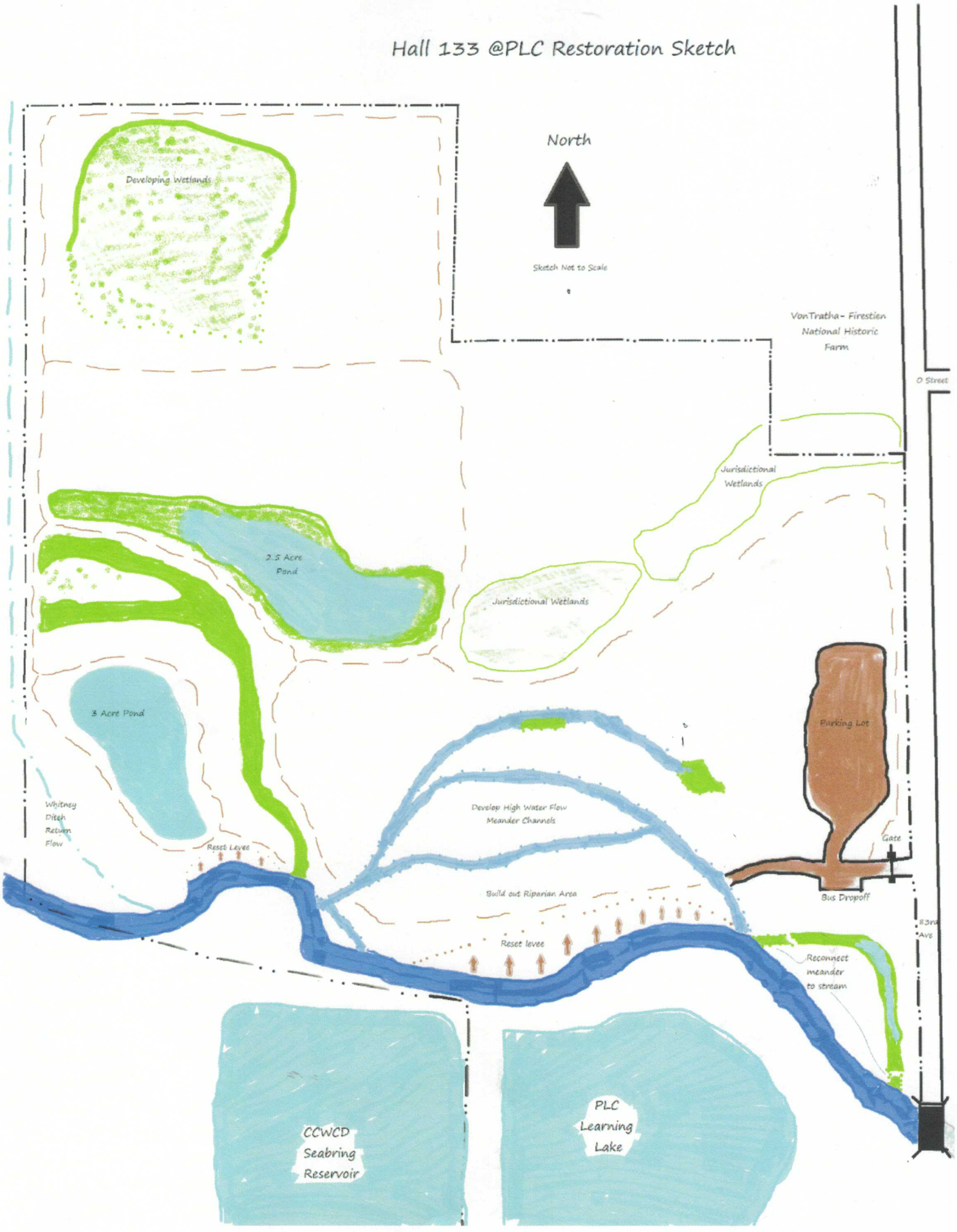
North ↑

Cache la Poudre River →

POUDRE LEARNING CENTER
MAIN CAMPUS

Greeley 3 miles ↘

Hall 133 @PLC Restoration Sketch



Lower Poudre River Flood Recovery and Resilience Master Plan

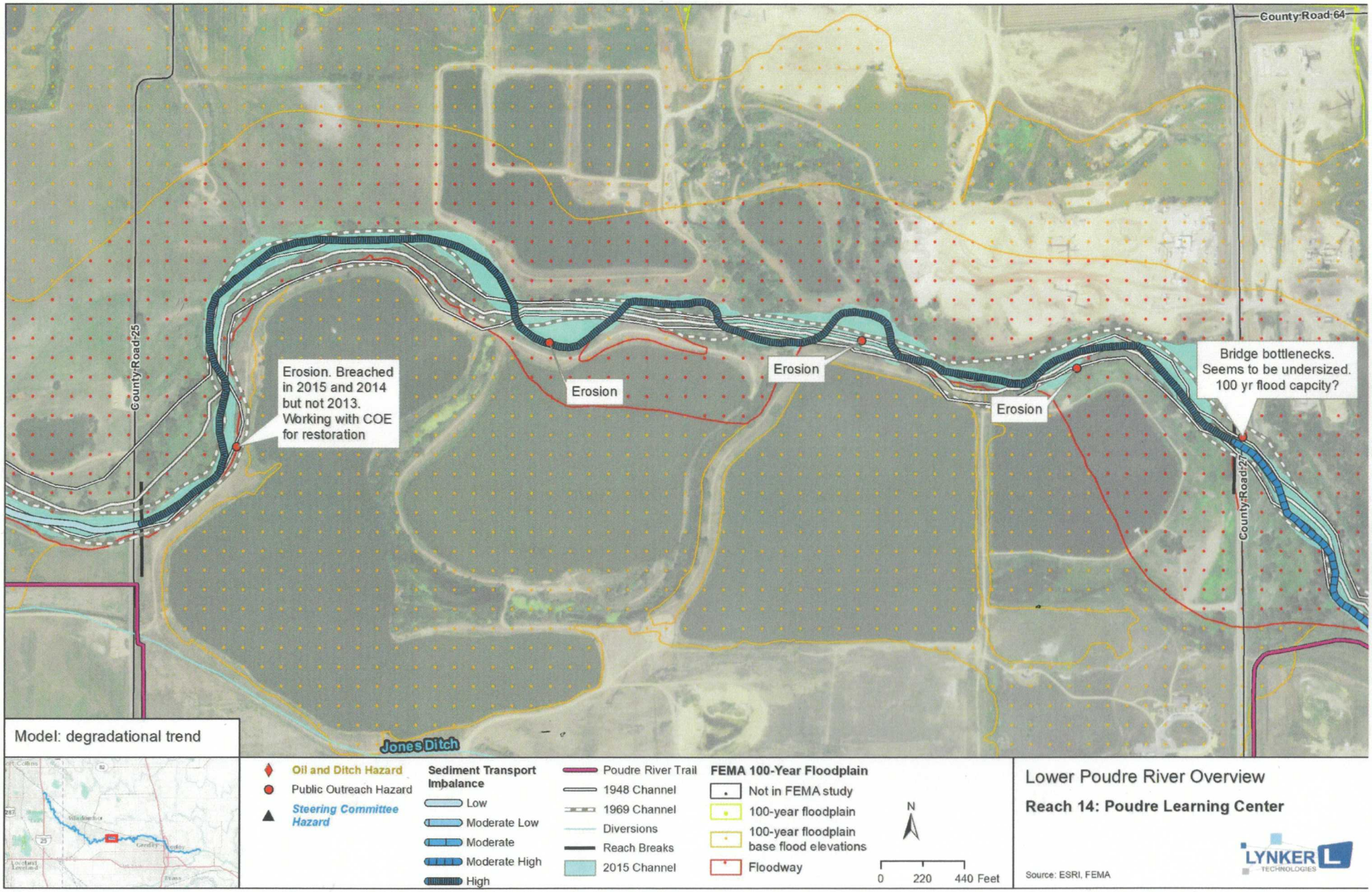
Prepared for:

The Coalition for the Poudre River Watershed

Prepared by:

Lynker Technologies Otak AlpineEco LVBrown Studio

December 2017


County Road 64
County Road 25
County Road 27
Erosion. Breached in 2015 and 2014 but not 2013. Working with COE for restoration
Erosion
Erosion
Erosion
Bridge bottlenecks. Seems to be undersized. 100 yr flood capcity?
Jones Ditch
Model: degradational trend
Oil and Ditch Hazard
Public Outreach Hazard
Steering Committee Hazard
Sediment Transport Imbalance
Low
Moderate Low
Moderate
Moderate High
High
Poudre River Trail
1948 Channel
1969 Channel
Diversions
Reach Breaks
2015 Channel
FEMA 100-Year Floodplain
Not in FEMA study
100-year floodplain
100-year floodplain base flood elevations
Floodway
N
0 220 440 Feet
Lower Poudre River Overview
Reach 14: Poudre Learning Center
Source: ESRI, FEMA
LYNKER TECHNOLOGIES

6.4.14 Reach 14: Poudre Learning Center

Reach 14 is characterized by a fairly channelized stretch of river, with storage reservoirs to the south and mining operations to the north. Central Colorado Water Conservancy District (CCWCD) has noted that the storage ponds experience bank erosion during high flow events. The sediment transport model indicates the reach tends toward high degradation.

Reach Description	
City/Town	Greeley, Weld County
Reach Length	1.5 miles
Major Bridges	95th Ave (CO 25), 83rd Ave
Major Diversions	--
Parks, Open Space	Poudre Learning Center
Site Specific Information	Central Colorado Water Conservancy District (CCWCD) has plans for improvement and stabilization of levees on the south side of the river to better project the storage ponds.
Areas of Interest	

Technical Assessment

Flood and Geomorphic Vulnerabilities

Summary: 15% of the historic channel is out of the FEMA 100-year floodplain, located in the eastern part of the reach. The historic channel is generally consistent with the 2015 active channel, except for a change in sinuosity. There are critical facilities, an oil structure, 2 bridges, and less than 10 buildings in the 100-year floodplain. The reach has a moderately low social vulnerability.

Overall Score: 1.25

River Assessment

Summary: The majority of land around Reach 14 is used as commercial industrial and naturalized open area with herbaceous and lentic open water landcover and low development. The river was historically channelized through most of the reach. Areas are still aggrading and widening but other areas seem to be heading towards a new quasi equilibrium where new low connected floodplain benches are within the old terraces. Pool-riffle sequencing is abundant here and the resulting habitat is extremely diverse.

Overall Score: 2.8

Potential Improvement

Summary: This reach has some improvement opportunities, including to "make room for the river", but existing constraints limit the overall potential improvement.

Overall Score: 2.7

Sediment Transport Study

Summary: Reach 14 has a much higher transport capacity (1.2) than its upstream reach (0.19), which leads to a high degradational sediment imbalance.

Model Output: Degradational trend, high sediment transport imbalance.

Overall Score: 5.0

Watershed Scale Benefit

Summary: There is low watershed scale benefit opportunity for Reach 14. There are few opportunities to connect existing sections of the well-functioning river but some potential to influence the larger scale sediment balance because this reach was calculated to have the highest capacity by the sediment transport model.

Overall Score: 2.0

Poudre River Trail

Summary: The trail does not follow the river and is mostly out of the 100-year floodplain. The trail vulnerability is low in Reach 14.

Overall Score: 1.0

Overall Score

Prioritization Score: 2.46	Reach Priority: 14

Land Use

Developed	Cultivated	Pasture	Herbaceous	Wetlands	Water
11%	37%	10%	8%	5%	30%

Land Ownership

Private Property: high	# of Landowners: 7	Public Land: low

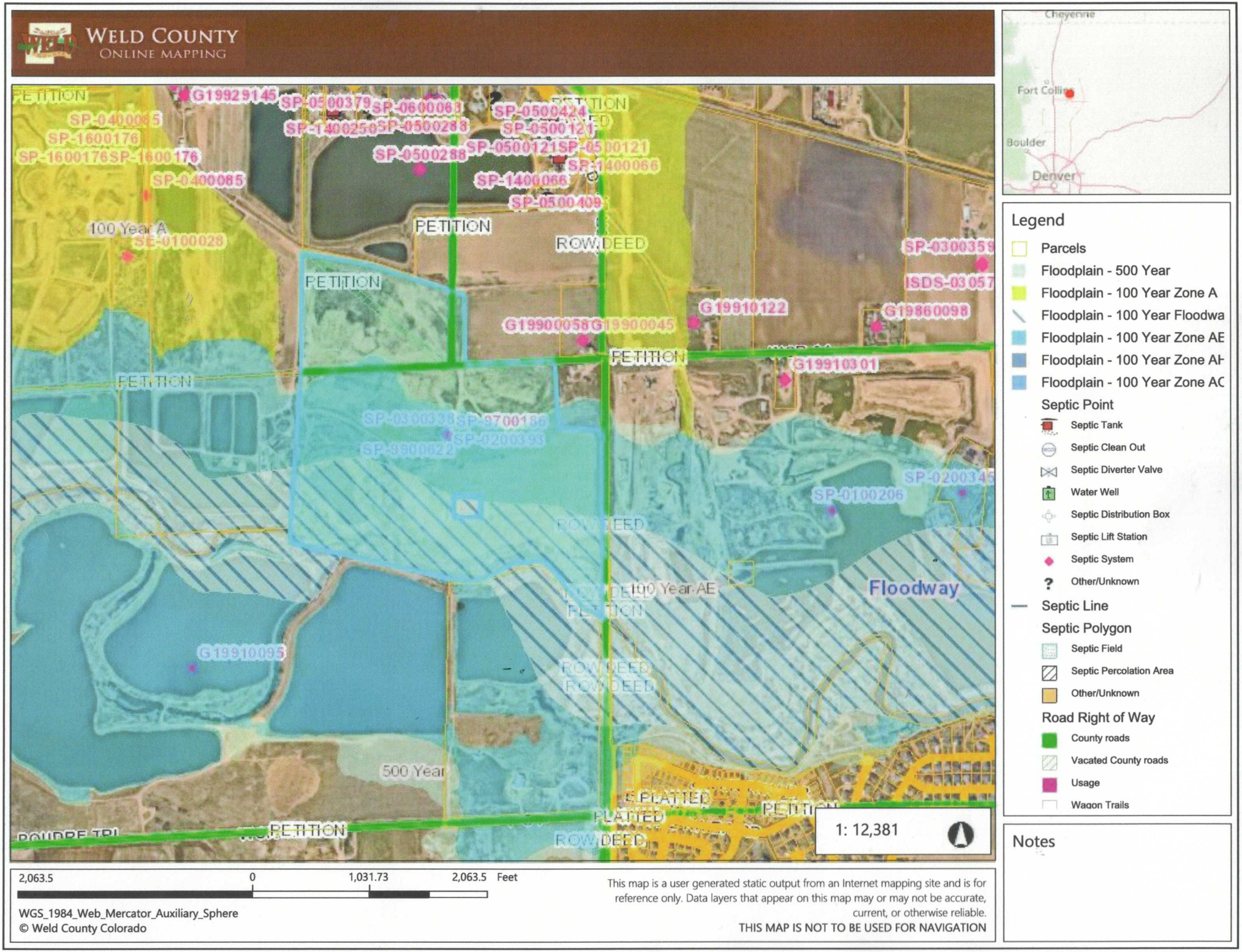
Large Landowners: Orr, Hall, Martin Marietta

Recommendations

Summary: High-level potential treatment opportunities include:

- Floodplain connection improvement via earthwork and floodplain culverts (1).
- Offset protection via levee setback (9).
- Bridge improvement via stable channel configuration and floodplain culverts (6).

Reach 14 is overall very confined and has been historically channelized due to gravel mining practices on both sides of the channel. This has led to the reach having very high transport capacity that tends toward degradation and exacerbates deposition issues at the Greeley No.3 diversion structure downstream in Reach 15. However, despite the constraints, there are many sections of good functioning aquatic habitat and riparian area. This is because the reach has enough capacity to maintain bedforms and in-channel habitat features during normal flow years. Additionally, the levees are offset enough to allow the river to move slightly and have some riparian function. The average width of the active river channel in this reach is 161 feet, which is wider than the urban reaches further downstream and likely helps the river function properly. Therefore, this reach is a good 'reference' to understand how other reaches on the Lower Poudre River with similar constraints can be improved to provide some function. This reach could be further improved by offsetting levees more to allow the river to migrate and establish larger riparian areas to provide sediment storage. See the concept designs for Reach 22 (Section 7.1.6) for more information on offsetting levees. The CCWCD has engineering plans for stabilizing their storage ponds on the south bank (river right) of the Poudre River.


WELD COUNTY
ONLINE MAPPING
Cheyenne
Fort Collins
Boulder
Denver
G19929145
SP-0500379
SP-0600063
SP-0500424
SP-0500121
SP-0500288
SP-1400066
SP-0400085
SP-1600176
SP-0500409
100 Year A
SE-0100028
PETITION
ROW DEED
SP-0300359
ISDS-03057
G19910122
G19860098
G19900058
G19900045
G19910301
SP-0300338
SP-9700186
SP-0200393
SP-9900022
SP-0200345
SP-0100206
100 Year AE
Floodway
G19910095
500 Year
PLATTED
1: 12,381
Legend
Parcels
Floodplain - 500 Year
Floodplain - 100 Year Zone A
Floodplain - 100 Year Floodwa
Floodplain - 100 Year Zone AE
Floodplain - 100 Year Zone AH
Floodplain - 100 Year Zone AC
Septic Point
Septic Tank
Septic Clean Out
Septic Diverter Valve
Water Well
Septic Distribution Box
Septic Lift Station
Septic System
Other/Unknown
Septic Line
Septic Polygon
Septic Field
Septic Percolation Area
Other/Unknown
Road Right of Way
County roads
Vacated County roads
Usage
Wagon Trails
Notes
2,063.5 0 1,031.73 2,063.5 Feet
WGS_1984_Web_Mercator_Auxiliary_Sphere
© Weld County Colorado
This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION